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Project alliance contract in The Netherlands

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A new form of contractual agreement and way of working adapted from other industries, the 'project alliance', was researched, developed and is undergoing demonstration to reduce the length of construction time and construction costs. This is achieved through contractor involvement at an early stage of the design process, project participants paid on a net cost basis with participants jointly sharing in the financial success or failure of the project at completion, and the creation of a contractual partnership between all parties.

Keywords: clients, construction management, contracts, incentive, innovation, motivation, procurement, profit, risk, The Netherlands.

Cet article porte sur des recherches faites sur une nouvelle forme d'accord contractuel et sur une méthode de travail issue d'autres industries; cette étude intitulée «project alliance» a été affinée et est en cours de démonstration, l'objectif étant de raccourcir la durée des travaux de construction et d'en réduire les coûts. Ces réductions sont possibles, d'une part, grâce à l'implication du contractant au début du processus de conception, les participants au projet étant payés sur la base du coût net et étant solidaires, sur le plan financier, de la réussite ou de l'échec du projet au moment de l'achèvement et, d'autre part, grâce la création d'un partenariat contractuel entre toutes les parties concernées.

Mots clés: clients, gestion de la construction, contrats, primes d'encouragement, innovation, motivation, approvisionnements, profits, risques, Pays-Bas.

Introduction

The 'Half Time' research project was designed to optimize the construction process. Its brief was to shorten the time span between project initiation and completion/hand over. Hollandsche Beton Groep (HBG), one of the major Dutch contractors, and TNO (the Dutch building research and technology organization) worked together over 3 years from 1998–2000. Employees of five HBG companies and six TNO institutes participated in 15 working commissions. In total, over 100 employees of both TNO and HBG were involved. The Netherlands Ministry of Economic Affairs generously funded the project. The overall budget was ~3 million Euro.

Table 1 lists the working commissions and their most important results.

Working Commission 1.1

Working Commission 1.1 addressed the contractual relations between parties in the building process and forms the basis for this paper. Members came from five HBG companies (HBG General Contracting, HBG Housing, HBG Pavements, HBG Civil and Tebodin (consultancy)) and from two research/technology institutes (TNO Bouw (building) and TNO Inro (infrastructure)). The brief for the '1.1 team' encouraged the investigation to go beyond existing contractual forms. The development of new contractual relations was specifically mentioned as one of the tasks. Consequently, the research was divided in two stages. The first stage created an inventory of existing contracts and assessed their effect on the process time. The second stage developed an alternative contract based on the findings from stage 1.

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Table 1 Working commissions and their most important results

Working commissions	Results
1 Organizational change	
(1) new contracts	the project alliance
(2) labour organization	successful project with self-steering teams
(3) engineering	simulation of concurrent engineering
(4) industrialized process	standard house build in 40 days (was before 140 days)
(5) work flow management	pending
(6) logistics on site	containerization of client-specific finishing materials
2 Technological change	
(1) concrete	time saved with new mix, pressed into formwork
(2) asphalt	less time spent on the road with prefabricated asphalt tiles
(3) positioning	quick positioning of heavy equipment with GPS
(4) product change	mobile tent to cover complete building site (housing) saved 38 days
3 ICT-enabled change	
(1) computer-aided design	estimators' and planners' time saved by modelling in 3D and 4D CAD
(2) IT support for processes	quick exchange of drawings by EDMS in design stage
(3) virtual environments	quick clients' decision after virtual presentation of alternatives
(4) knowledge management	infrastructure for in-company knowledge management
4 Change by brainstorming	
extreme solutions	pending

A desk research study listed all types of contracts, ranging from traditional contracts based on tender documents to advanced contracts such as Public Private Initiatives and Build Operate and Transfer contracts. For each type of contract, a widely accepted definition was chosen from the many definitions found. In step 2, the team interviewed experts from a variety of backgrounds, architects, project developers, researchers, legal consultants and clients. Based on the information gathered and the opinions heard, all contracts were assessed in respect of their influence on the process speed.

The outcome of this assessment was presented and discussed during a brainstorming session at Delft University of Technology. Among the participants were researchers from the University and TNO, architects, property developers, legal consultants, contractors and clients. In addition, representatives from other industries were invited (automotive manufacturing, electronics and confection industries). After this session, stage 1 of the research was completed with a report concluding that, among existing contracts, 'Partnerships' and 'Design and Build' contracts are most time effective, but that application of the project alliance model to the business may be an even better option.

The 'Project Alliance' (which is little known in the building industry) appeared to be very successful in other industries. Therefore, the Working Commission 1.1 focused the second stage of their research solely on this form. The first steps were again a literature search, followed by interviews with people involved in alliances.

The oldest reports on a successful application of an alliance contract originate from the early 1990s. At that time, the offshore industry drilling for oil and gas in the North Sea became too expensive, as energy prices were low. Development of more effective co-operation between parties was a condition for survival of the civil engineering firms active in this field. Under pressure of circumstances, a new contractual form was developed. With the benefit of hindsight, the alliance contract was of decisive importance for the survival of the offshore civil engineering industry.

In the late 1990s, several companies active in the offshore industry tried to apply the successful alliance concept in their onshore activities. As a result, some construction projects in the petrochemical industry were designed and built based on the same alliance principle. These projects also reported to be very successful (Halman and Braks, 1999; Ottolini *et al.*, 1999). Not only were the projects completed within budget and on time, but high standards of site safety and labour conditions were adhered to.

Traditional contracts

Traditional construction contracts do not encourage contractors to propose process innovation. Only designers, without any consultation with contractors, normally prepare tender documents. In the tender documents, all materials are specified; even application systems are described in detail. Contractors are not invited to mention their process preferences. As a result, there has been little call for process

innovation by contractors. In many tenders, an offer with an alternative material or application system may even cause refusal of the whole bid.

Under a traditional contract, the client signs separate contracts with a number of parties. First, the design team and, later, after the tender stage, the client also enters into contract with the builders. These organizations do not usually arrange their mutual relations in additional contracts. Project co-ordination is the responsibility of a main contractor, but the power of this main contractor to enforce co-operation is seldom sufficient. So, each matter not covered in the contracts with the client may cause disputes between parties and claims for additional works or damage. Unforeseen cost and budget overruns are often the consequence. As a result, many projects end in arbitration.

Project alliance

A project alliance approach has some characteristics of a joint venture. A number of organizations constitute a new entity for the design and execution of a project. This entity is not necessarily a legal body. It is more a partnership than a company. Partners provide their services to the project organization on a 'net cost' basis. No party makes profit from the supply of manpower or the delivery of materials. At the completion of the project, all parties share profit and loss. Each party receives its share in accordance with its earlier negotiated share in the project. In the pilot projects studied, the client participated for ~50% in profit and loss. In one case, the loss for the other parties was limited to 10% of their turnover.

Similar to design and build contracts, the contractor is invited to contribute during the design stage based on the contractor's specific experience and expertise. Process and product innovations are encouraged and all parties are potential beneficiaries. The design will result in a work specification with an optimal fit to the contractor's preferred approach.

The project alliance, unlike the better known strategic alliance, only binds the parties together for the duration of one project. Partners in the project alliance do not select each other. It is the client who puts the alliance together. A company could simultaneously participate in more than one project alliance at a time. Partners in a project alliance may be competing separately for another project. This situation is unlikely to occur between long-term strategic alliance partners.

As a result of the common goal, shared by all parties involved, the risk that disputes arise among them and claims follow is very low. Clients, consultants and contractors work together in good harmony to secure and optimize a profit for all.

Research stage 2

The literature research by HBG and TNO started with an analysis of information publicly available from three pilot projects all in The Netherlands. These were, as far as was known at that time, the only project alliances in The Netherlands:

(1) The re-commissioning of the CDU4 distillation plant for crude oil, obsolete and closed since 1987. Client was Nerefco (Netherlands Refining Company, a joint Venture of BP and Texaco) (*Uit Europortkringen*, 1997)

(2) Construction of a hydrofiner, an advanced type of gas-oil refinery, also for Nerefco (*PetroChem*, 1998)

(3) Extension of a polypropene factory for DSM (previously known as Dutch State Mines) (Debottlenecking PPF1, 1997)

Partners in the hydrofiner projects were Nerefco (the client), Raytheon Engineers & Constructors, Fabricom (mechanical and electrical contractors) and NBM Amstelland (civil contractors). In the CDU4 project, Nerefco formed an alliance with Stork/ICM (mechanical), Croon (E&I) and Mourik Services. Alliance partners for DSM were Fluor Daniel and GTI.

To obtain a complete picture of the project alliance concept, interviews were held with several parties involved in one of the three above-mentioned projects. The central question was: is it likely that the project alliance concept can be transferred successfully to other businesses (general contracting, housing, civil works, road construction etc.)?

Also, the second stage was closed with a brainstorming session to validate the findings with an expert audience. The conclusion was that project alliances are worth trying in the general building business.

Alliance contracts

All reports on completed alliance contracts mentioned difficulties in the drafting of the alliance contract. The lack of both a tested concept and contract appeared to be a major problem for most potential partners. Therefore, HBG's legal department was invited to draft a concept for such a contract. One pilot project reported that the lawyers of the alliance partners were not able to finalize the contract before the execution of the work had commenced. Soon after the handover of the completed work to the client (without any disputes arising), the legal departments of the partner companies also completed their job. However, progress on developing contracts has now been made. Recently, Stibbe Simont Monahan Duhot (1999) (a major legal advisory practice in Amsterdam) and the Dutch Institute for Construction Law in The Hague drafted standards for alliance contracts. These standards are expected to be published by the end of 2001. The advisors' contract was actually used in a recent alliance project for DSM, called the Willy project.

More important than contractual formalities was the willingness by all employees involved to co-operate. Support from

the highest management levels for this co-operative attitude is an indispensable condition for success. Mutual trust among all parties involved is a decisive factor. If one party attempts to make an extra profit by charging the alliance for more than its net cost, then trust between parties is lost and the alliance will collapse. The above-mentioned pilot projects had prepared a fallback scenario using traditional methods, in case such a collapse occurred. However, this was unnecessary as none of the pilot projects ended in such circumstances.

Restrictions

The alliance appears to be useful for many projects, but it is not the solution to all problems in building. Restrictions to its use include:

- The alliance is suitable for large and complex projects. Small and simple projects will not benefit so much from an alliance
- Public clients are interested in benefit sharing only. Often they are not prepared or not allowed to share risks
- The risk of losing time when applying for building permits cannot be transferred to an alliance, as the partners are not able to manage this risk
- Architects appear more prepared (when compared to other partners) to limit their profit when softer factors such as architectural quality are at stake
- Architects and construction managers may feel their positions of power, as the manager of the whole project, are lost in an alliance
- Mutual understanding and trust are of decisive importance. When one party tries to make extra profit while cheating the others, the alliance falls apart

Motivation and culture

In the Dutch building culture (and presumably not only there), the most important difference between industrial construction projects and general construction is the position and attitude of the architect. An architect loses more than project control under a project alliance contract. The project alliance success is based on the assumption that all parties are motivated by optimizing their financial gain. However, when one party has other values, the alliance will not work. Architects may be such a party. Architects often have different priorities from contractors, and if cultural values (such as expression, image, feelings, societal needs, etc.) take dominance over profitability, the alliance may appear to be an unworkable system. Interviews with some architects made gave confidence that not all architects are reluctant to participate in an alliance. Some architects appeared very interested in the alliance philosophy and wanted to give it a try.

Benchmarking

Benchmarks are needed to compare the results of alliance projects with the outcome under traditional contracts. Literature regarding the petrochemical industry usually refers to benchmark figures supplied by IPA, Independent Project Analysis Inc. This company gathers and disseminates cost data on comparable projects worldwide. The project alliances mentioned in this article used IPA data to measure their achievements.

Analysis of the reports on pilot projects in the petrochemical industry showed very promising results. The following successes were found:

- Projects were completed 15% under budget
- Projects were completed in 80% of planned time
- No serious accidents on site
- Quality of engineering above expectation
- Better satisfaction for labour force

Pilot projects

As far as is known, only one infrastructure pilot project using the project alliance approach is currently under construction: the construction of a new track for NS Infra, the Dutch railroad authority. In general construction, no actual pilots have been reported until now. As a follow up for the 'Half Time' project, HBG has decided to start pilot projects in two of their business units. One project will be in the area of civil works, although the specific pilot project has not been selected yet. The other pilot will be a general construction project for an office building for HBG Real Estate Development. An internal HBG team will perform the engineering services for this project. It is expected that the design stage for this pilot will start in September 2001.

Although the 'Half Time' project is finished, Working Commission 1.1 will continue to establish and monitor the planned pilots in general and in civil construction. Results from this monitoring are expected to be available by the end of 2002.

Conclusion

Keywords in the success stories of modern industrial organizations are partnering, co-makership and strategic alliances. The automotive and the aviation industries demonstrate what could be achieved with these new forms of co-operation. The construction industry is clearly lagging behind with their traditional tender-based relations.

Recent developments in the petrochemical industry suggest that the construction industry can also benefit from new forms of industrial relations, especially the project alliance. The success of the project alliances is strongly related to the fact that no party can make extra profit by shifting cost to

another party. This motivates parties to co-operate in a way not typically found in the construction industry. Reports on pilot projects in general construction will be available soon. It is expected that a major step forward will be possible and that a completely new process will mature in the forthcoming years.

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